NUS CORPORATION
19 CROSBY DRIVE
BEDFORD, MASSACHUSETTS 01730
617-275-2970

REGION 1 FIT/EPA CORRESPONDENCE

C-583-8-1-172

TO: DON SMITH/EPA **DATE: August 16, 1991**

FROM: STEPHEN ANDRICHAK/NUS/FIT

COPIES:
S. DANKE/NUS/FIT
S. HAYES/EPA
T. O'CONNOR/RIDEM (2)

SUBJECT: FINAL TARGET MEMO
BOULTER FARM AREA
Cumberland, Rhode Island
TDD No. F1-9103-23
Reference No. $375RIG9HR
CERCLIS No. RID980672620

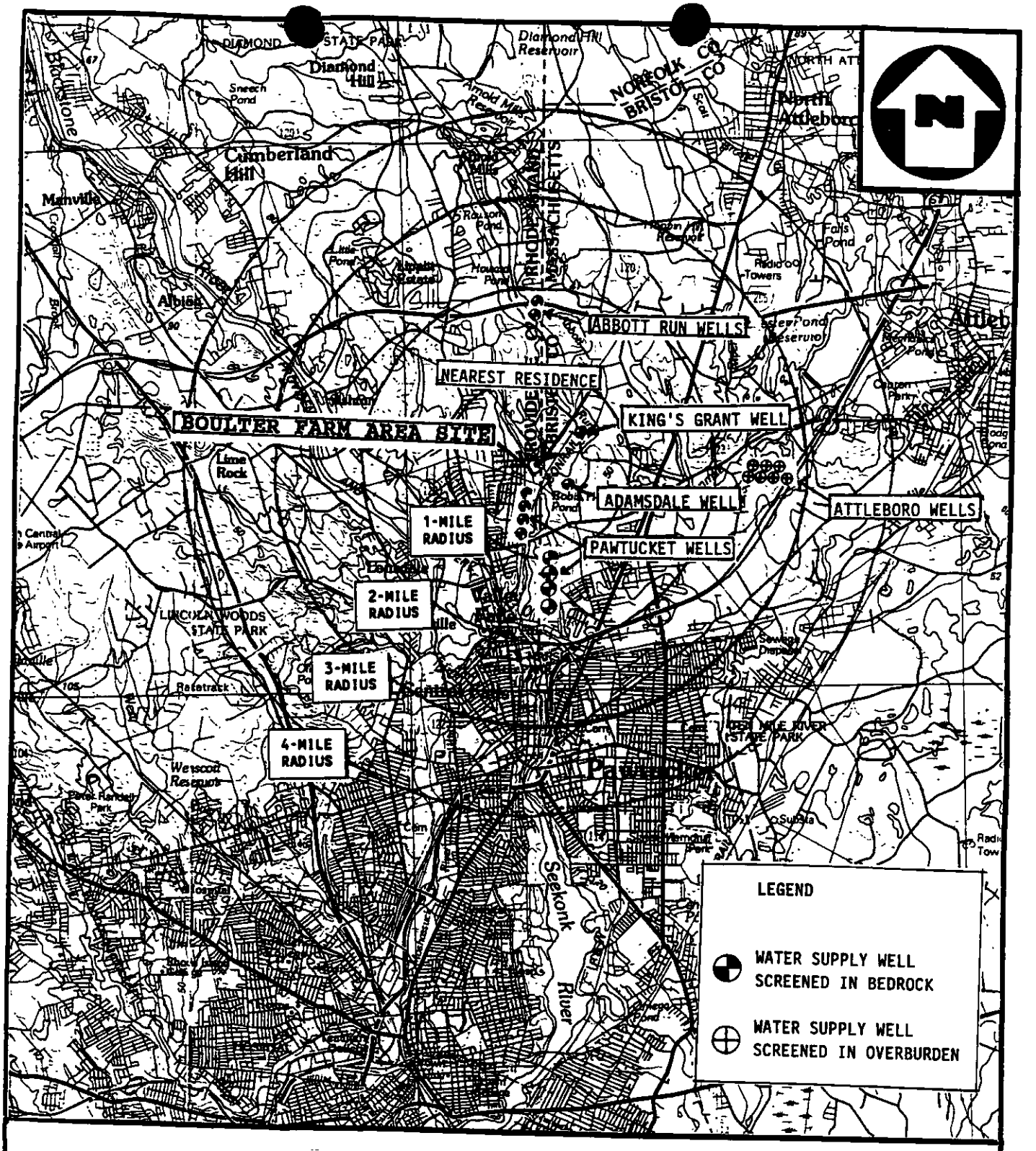
INTRODUCTION

This memo presents a summary of human and environmental resources identified as being potentially affected by contamination via groundwater, surface water, soil, and air pathways, as a result of past waste disposal practices at the Boulter Farm Area in Cumberland, Rhode Island.

The Boulter Farm Area occupies approximately 20 acres of land and is located northwest of Curran Road on the Rhode Island and the Massachusetts border (Figure 1). Between the late 1960s and 1976 the property was used for the demolition of junk cars and as a solid waste dump. Drums, tanks, landfill, and backfilled surface impoundments (lagoons # 1 and # 2) constitute potential source areas on the property (Figure 2). Analytical results have indicated volatile organic compounds (VOC), metal, and polychlorniated biphenyl (PCB) contamination in surface water and groundwater samples collected from the property (RIDEM 1989 pg. 3,5,18,20-23; W&H 1986 pg.4)

GROUNDWATER RESOURCES

An unnamed valley aquifer is located approximately 500 feet east of the property, extends north and south several miles and is approximately 2,000 feet wide. Eighteen supply wells lie in the unnamed valley aquifer within a four mile radius from the property. Potentially affected populations via the groundwater migration pathway include those people served by the groundwater (private and public supplies) for drinking water purposes. Tables 1a and 1b identify these estimated populations (RIDEM 1989 pg. 6,7).



BASE MAP IS A PORTION OF THE 30 X 60 MINUTE U.S.G.S. MAP Providence, RI 1984

KILOMETERS 0 1 2 3 4 5

MILES 0 1 2 3 4 5

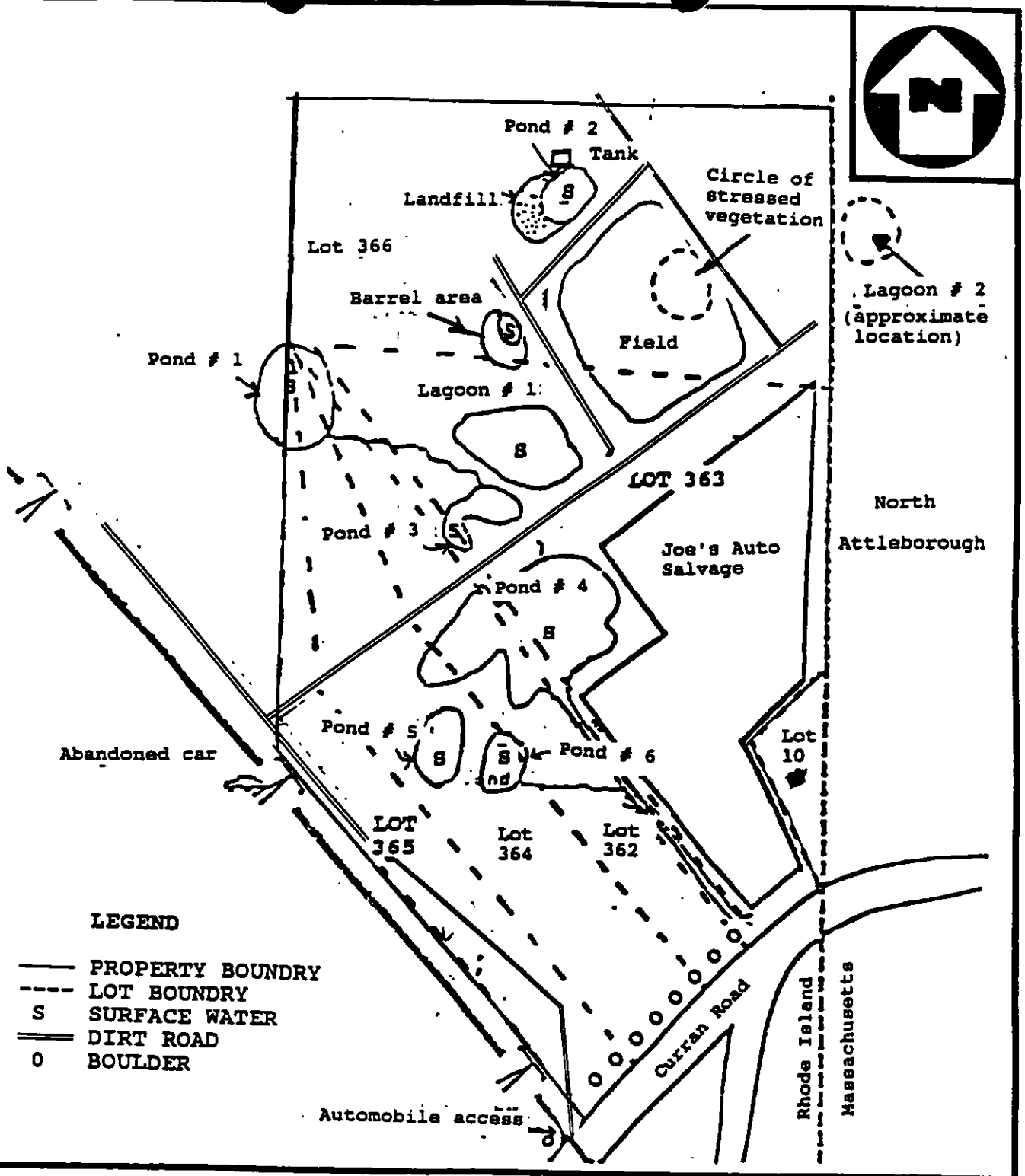
FOUR MILE RADIUS MAP

BOULTER FARM AREA

CUMBERLAND, RHODE ISLAND

NUS CORPORATION

FIGURE 1



NOT TO SCALE

Adapted from a 1989 RIDEM report (map) entitled "Screening Site Inspection Letter Report".

SITE SKETCH

BOULTER FARM AREA

CUMBERLAND, RHODE ISLAND

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FIGURE 2

TABLE 1a
PRIVATE WELL USERS

Radial Distance From Boulter Farm Area (miles)	Approximate Population Served by Private Wells
onsite	0
0.00-0.25	10
0.25-0.50	34
0.50-1.00	129
1.00-2.00	470
2.00-3.00	787
3.00-4.00	1,141
TOTAL:	2,571

(WSP 1988; Andrichak 1991f, 1991g)

TABLE 1b
PUBLIC WELL SUPPLY SOURCES WITHIN 4 MILES OF THE BOULTER FARM AREA

Distance/Direction from Site (miles)	Well Name	Distance Ring (mi.)	Percent Contribution	System Serves	Well Serves
0.75 NE	Kings Grant	0.5-1.0	1.00	950	950
0.75 SE	Adamsdale	0.5-1.0	.1136	19,301	2,192
0.75 S	Pawtucket # 9	0.5-1.0	.00163	105,000	171
0.75 S	Pawtucket # 8	0.5-1.0	.00163	105,000	171
0.75 S	Pawtucket # 7	0.5-1.0	.00163	105,000	171
0.90 S	Pawtucket # 6	0.5-1.0	.00163	105,000	171
1.5 S	Pawtucket # 5	1.0-2.0	.00163	105,000	171
1.5 S	Pawtucket # 4	1.0-2.0	.00163	105,000	171
1.75 S	Pawtucket # 3	1.0-2.0	.00163	105,000	171
1.75 S	Pawtucket # 2	1.0-2.0	.00163	105,000	171
1.5 N	Abbott #2	1.0-2.0	.0678	19,250	1,305
1.5 N	Abbott #3	1.0-2.0	.113	19,250	2,175
3.5 E	Attleboro # 1	3.0-4.0	.242	35,000	8,470
3.5 E	Attleboro # 2	3.0-4.0	.0973	35,000	3,406
3.5 E	Attleboro # 3	3.0-4.0	.0973	35,000	3,406
3.5 E	Attleboro # 4	3.0-4.0	.113	35,000	3,955
3.5 E	Attleboro # 5	3.0-4.0	.0567	35,000	1,985
3.5 E	Attleboro # 6	3.0-4.0	.122	35,000	4,270
				Total:	33,482

(WSP 1988; Andrichak 1991a, 1991b, 1991c, 1991d, 1991f, 1991g)

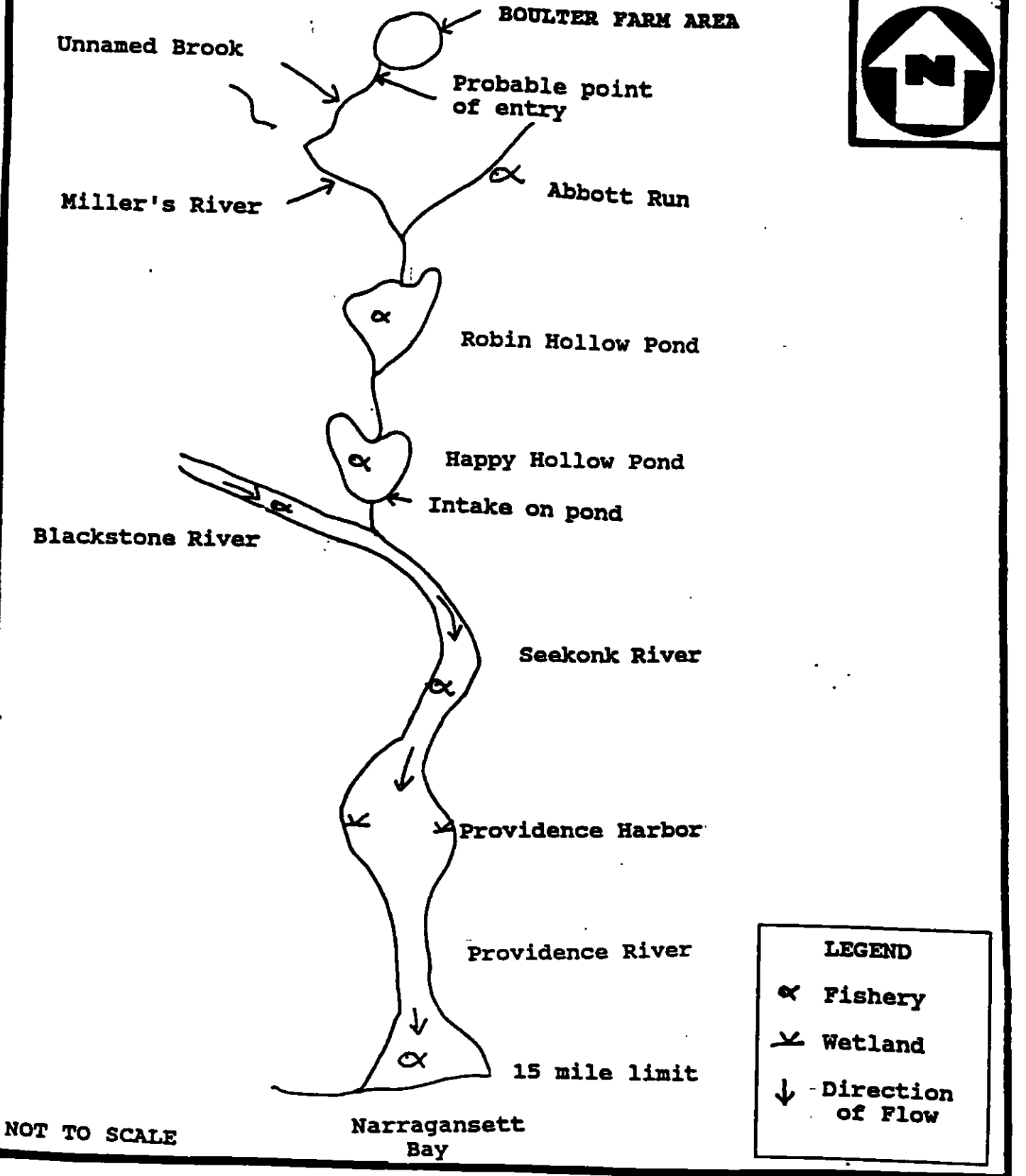
Three of the five nearest municipal supply wells have had volatile organic compounds detected in them; they are the Pawtucket, Rhode Island Wells No. 8 and No. 9, and the Adamsdale well located in North Attleborough, Massachusetts. Concentrations below the maxium contaminant levels of volatile organic compounds have been detected in groundwater samples collected from all three of these wells. The wells are in use, and serve approximately 2,534 people (RIDEM 1989).

Pawtucket Well No. 1 was closed in 1987 after trichloroethene was detected in the groundwater at a concentration of 5 parts per billion (RIDEM 1989). There is a private well onsite but it is not being used (EPA 1981 pg.6).

Currently, there are no wellhead protection areas in Rhode Island. Rhode Island is in the process of designating Wellhead Protection Areas for all community wells in the state. Once this study has been completed the protection areas will be submitted to the U.S. EPA for approval (Andrichak 1991h). In Massachusetts, only those wells installed after July 6, 1990 are subject to state wellhead protection guidelines. North Attleborough and Attleboro have instituted some groundwater protection laws, but these do not meet state guidelines (Andrichak 1991j). There are no other known groundwater uses.

SURFACE WATER

Potentially affected resources along the fifteen downsteam mile surface water migration path include drinking water populations, fisheries, and sensitive environments(Figure 3). The Boulter Farm Area is located within the Blackstone River Drainage Basin. Surface waters on the Boulter Farm property consists of small interconnected ponds that flow south to an unnamed brook which borders the site. From the unnamed brook the water flows .25 miles south to Miller's River. The River then flows 0.25 miles south into Abbott Run. Abbott Run flows 200 feet south to Robin Hollow Pond. From the entrance to Robin Hollow Pond the water flows 1.0 mile south to Happy Hollow Pond. From the entrance to Happy Hollow Pond the water flows 0.50 miles south to the Blackstone River. The Blackstone River flows 2.0 miles south to the Seekonk River which then flows 4.0 miles to the Providence River where the 15 mile downstream pathway ends (USGS 1975a, 1975b, 1975c, 1975, 1979a, 1979b). The only river that has a gauging station is the Blackstone River, which has a flow rate of 771 cubic feet per second (Danke 1991b).



SURFACE WATER MIGRATION PATHWAY

BOULTER FARM AREA
CUMBERLAND, RHODE ISLAND

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FIGURE 3

Drinking Water Resources

Happy Hollow Pond, located 1.5 stream miles south of the property, supplies drinking water to approximately 103,635 people (Andrichak 1991f). Currently, there is no information indicating that this supply has been contaminated. The following table summarizes characteristics of this water resource.

TABLE 2

SURFACE WATER RESOURCES

Name of Surface Waterbody	Distance to intake from Probable Point of Entry	Percent Contribution	System Serves	Intake Serves
Happy Hollow Pond	1.75 miles	0.987	105,000	103,635

(RIDEM 1989; Andrichak 1991f)

There are no known private surface water intakes.

Human Food Resources

Those surface water bodies that are suitable as fisheries, include Abbott Run (Class "A"), Robin Hollow Pond (Class "A"), Happy Hollow Pond (Class "A"), Blackstone River (Class "C"), Seekonk River, and the Providence River. A Class "A" designated water body is suitable for drinking and all other uses. A Class "C" designation means the water is suitable for wildlife, fishing, and industrial processes. The Blackstone and the Seekonk Rivers contain mainly warmwater fish species, however, efforts are underway to restore the herring and salmon spawning areas (RIDEM 1989; Danke 1991a).
The following table summarizes recreational fisheries.

TABLE 3

RECREATIONAL FISHERIES

Name of Surface Water	Distance to Fishery mi.	Annual Flow Rate cfs*	Fishery Type
Miller's River	0.25	No gauging station	unknown
Abbott Run	0.25	No gauging station	trout
Robin Hollow Pond	0.50	No gauging station	unknown
Happy Hollow Pond	1.50	No gauging station	unknown
Blackstone River	2.00	771	warmwater
Seekonk River	4.00	No gauging station	warmwater
Providence River	8.00	No gauging station	unknown

* cubic feet per second

(RIDEM 1989; Danke 1991a; USGS 1975a, 1975b; Andrichak 1991i).

Environmental Resources

There are approximately 1.5 miles of wetland frontage along the 15 downstream mile drainage pathway. This wetland frontage is located on the Providence River, approximately 13 stream miles from the property. There are no other known sensitive environments along the surface water pathway (USGS 1975c, 1975d).

SOIL EXPOSURE

Targets subject to potential contamination via the soil exposure pathway are limited to nearby residents via pedestrian or vehicular access; there are no barriers to the potential source areas. There are no onsite workers or residents. There are no known terrestrial sensitive environments located onsite (RIDEM 1989). The nearest residence is located approximately 300 feet southeast of the Boulter Farm Area. The nearest school is located approximately 2.1 miles west of the property (USGS 1975b). Table 4 identifies the number of residents within 1 mile of potentially contaminated source areas.

TABLE 4

NEARBY RESIDENTS

Radial Distance from the Boulter Farm Area (miles)	Approximate Population
0.00-0.25	187
0.25-0.50	625
0.50-1.00	2,421
Total:	3,233

(Andrichak 1991g).

AIR PATHWAY

Resources subject to potential contamination from the Boulter Farm Area via the air pathway include residents and sensitive environments located within four miles of the property. The surrounding land is used primarily for "open-space" followed by agricultural and residential uses (W&H 1986). Table 4 identifies the approximate human population and wetland acreage within specific radial distances from the Boulter Farm Area.

TABLE 5
POPULATION AND WETLAND ACREAGE

Radial Distance from Boulter Farm (Miles)	Approximate Population	Wetland Acreage
onsite	0	0
0.00-0.25	187	0
0.25-0.50	625	37
0.50-1.00	2,421	59
1.00-2.00	9,949	332
2.00-3.00	31,210	341
3.00-4.00	60,998	467
TOTALS:	105,390	1,236

(Andrichak 1991g; US DOI 1975a, 1977a, 1977b, 1977c).

SUMMARY

In summary, the pathway of primary concern from the Boulter Farm Area is the groundwater migration pathway. Groundwater from nearby public wells serve 33,482 people. Volatile organic compounds that have been detected in the municipal supplies have also been detected in groundwater samples collected from the property. The Boulter Farm Area may be a contributing factor in the contamination of the unnamed valley aquifer which recharges groundwater in the area.

Approval: _____
Robert Jubach
FIT Office Manager

Memo To: Don Smith/EPA

C-583-8-1-172
August 16,1991

PA Method References

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US DOI. 1977c. National Wetlands Inventory. Bristol, Rhode Island. U.S. Department of the Interior, Division of Fish and Wildlife Service. April.

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NUS CORPORATION
19 CROSBY DRIVE
BEDFORD, MASSACHUSETTS 01730
617-275-2970

REGION 1 FIT/EPA CORRESPONDENCE
C-583-8-1-173

August 16, 1991

Don Smith
Superfund Support Section (HSS-7)
U.S. EPA Waste Management Division
JFK Federal Building
Boston, Massachusetts 02203-2211

Subject: **Final Target Memo**
Boulter Farm Area
Cumberland, Rhode Island
TDD No.F1-9103-23
Reference No. $375RIG9HR
CERCLIS No.RID980672620

Dear Mr. Smith:

Enclosed are two copies of the Final Target Memo for Boulter Farm Area located in Cumberland, Rhode Island. This document was prepared in response to Technical Directive Document No. F1-9103-23. Comments to the draft document have been incorporated.

If you have any questions, please do not hesitate to contact me at (617) 275-2970.

Sincerely,

Stephen Andrichak
Project Manager

Enclosure

cc: Sharon Hayes/EPA
Robert Jubach, NUS/FIT (w/o enclosure)
Mark Radville, NUS/FIT (w/o enclosure)
Shirley Danke, NUS/FIT